

REMARKS


I. Status of Claims

Claims 1-21, 27 and 28 are pending and stand rejected. Claim 1 has been amended to define the hard segment component as a polyester made of naphthalenedicarboxylic acid. Support for this amendment comes from the specification as filed at page 7. Claim 1 has also been amended to include the limitation that the polyester-based elastomer has a bending elastic modulus from 160 MPa to 700 MPa. Support for this amendment comes from the specification as filed in the Examples which show bending elastic moduli of 160 MPa, 480 MPa, 550 MPa and 700 MPa. No new matter has been added.

II. Claim Rejections

a) 35 U.S.C. § 103(a)

Claims 1, 3-5 and 27-28 stand rejected as obvious over JP 2000290483 ('483). The Examiner contends that '483 discloses a heat resistant plastic tube comprising at least one layer consisting essentially of a polyester based elastomer including at least one of a polyester-polyester block copolymer with a hard segment component and a soft segment component and a polyester-polyether block copolymer with a hard segment component and a soft segment component, an inner layer comprising a polyester-based elastomer and an outer layer formed on an outside of the inner layer and comprising a crystalline polyester-based resin on inner layer comprising a crystalline polyester-based resin and outer layer formed on an outside of the inner layer and

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comprising a polyester-based elastomer. The Examiner concedes that with regards to claims 1 and 27 '483 does not disclose the recited ranges for change rate in inner diameter in a dimensional performance test or change rate in yield strength in a flexibility retainability performance test while noting that these ranges are all related to heat stability. The Examiner further contends that '483 does disclose tubes which have excellent cold and heat resistance and improved flexibility and concludes that one of ordinary skill would recognize that the recited ranges for change rate in inner diameter in a dimensioned stability performance test or change rate in yield strength in flexibility retainability performance that would be readily determined through routine experimentation, depending on the desired end results absent clear and convincing evidence of unexpected results. The Examiner goes on to say that it would have been obvious to one of ordinary skill to have provided the recited ranges for change rate in inner diameter in a dimensional stability performance test or change rate in yield strength in a flexibility retainability performance test in order to provide improved cold and heat resistance and provide improved flexibility. Applicants respectfully traverse.

Without conceding the Examiner's position or the need for amendment, claim 1 has been amended to define the hard segment component as a polyester made of naphthalenedicarboxylic acid. Claim 1 has also been amended to include the limitation that the polyester-based elastomer has a bending elastic modulus from 160 MPa to 700 MPa. '483 teaches a hose having at least an inner tube member, an outer tube member and a reinforcing layer, at least one of the inner tube

member and the outer tube member is made of a thermoplastic elastomer composition. The thermoplastic elastomer comparison consists of:

- (i) 30-90 wt% of a thermoplastic resin composition containing a thermoplastic copolyester elastomer consisting of a high-melting crystalline polymer hard segment and a low-melting polymer soft segment, and
 - (ii) 10-70 wt% of a rubber composition composed of an acrylic rubber containing an acrylic group and an epoxy group
- (the compositions (i) and (ii) amount to 100 wt%).

Paragraph [009], to which the Examiner refers, shows the above. The reference teaches the drawbacks of a hose which is purely made of polyester-base thermoplastic elastomer without vulcanized rubber. Furthermore '483 described in the paragraph [0022] as follows:

Although thermoplastic resin composition containing at least a kind of thermoplastic copolyester elastomer (1) may further include a thermoplastic resin other than the thermoplastic copolyester elastomer blended therein, it is preferable to include 50 wt % or more of the thermoplastic copolyester elastomer (1).

From the above, the content of the thermoplastic copolyester elastomer in the composition is 50 wt% or more of the 30-90 wt% of the thermoplastic resin composition of the thermoplastic elastomer composition to be used for a hose. Furthermore '483 states drawbacks of Comparative example 3 (which consists of a 20% of rubber composition and an 80% of thermoplastic copolyester elastomer composition) as follows:

Due to a large volume of resin, flexibility and durability of the tube deteriorates.

On the other hand, in the present invention, the tube layer is substantially made of thermoplastic copolymer elastomer (more specifically, with a polyester hard segment component made of naphthalenedicarboxylic acid). '483 describes that a thermoplastic copolymer elastomer tube (as one layer of a three-layer hose) without a rubber composition is not what it wants. It is therefore contended that the '483 teaches away from the present invention because it clearly states drawbacks of not using a vulcanized and acrylic rubber.

Furthermore, the reference touches on flexibility of the tube under a normal temperature and a low temperature (abstract), but not under a heated temperature such as in an engine compartment of a motor vehicle.

In addition, "flexibility" is a relative term. The flexibility that the present invention requires is sufficient to be put in the thermal bending molds with an angle of 90° (Page 12, lines 16-17). On the other hand, '483 which relates to a variety of general hoses, must require high flexibility of the hose, which is why, flexibility is essential and a rubber composition is essential.

Further, in the Office Action, the Examiner notes that the tested ranges in Claims 1 and 27 are all related to heat stability and states that '483 discloses that tubes have excellent cold and heat resistance and improved flexibility (abstract, para. [0001]). Cold and heat resistance is also a relative term, like flexibility. As stated above, '483 notes "an normal and cold temperature" in Abstract. '483 has many occurrences of the term "cold resistance" more than "heat resistance" in the specification. The impact pressure test in '483 used as a 120°C of oil and an 80°C of oil. '483 doesn't describe the tube which could resists heat as high as 150°C, against which the present tube

have a resistance. 483 doesn't disclose suggest or provide a motivation to make the a heat resistant plastic tube of the present invention which could resist against 150°C or more.

Applicants respectfully request withdrawal of this rejection.

Claims 2 and 6-21 stand rejected as obvious over '483 in view of Kobayashi (U.S. Patent No. 4125032) and Rau (U.S. Patent No. 4510968). The Examiner acknowledges that '483 does not disclose a tube consisting essentially of a single layer of a polyester based elastomer. The Examiner contends that Kobayashi discloses wherein the tube consists essentially of a single layer of the polyester based elastomer. The Examiner concludes that it would have been obvious to have provided a tube consisting essentially of a single layer of the polyester based elastomer in the tube of '483 in order to provide ease on construction and lower costs suggested by Kobayashi.

The Examiner acknowledges that '483 fails to disclose a fuel feed tube usable within an engine compartment of a motor vehicle wherein the tube further comprises a bellows portion extending at least part of its length. The Examiner contends that Rau discloses a tube which is a fuel feed tube usable within an engine compartment of a motor vehicle, wherein the tube further comprises a bellows portion extending at least part of its length. The Examiner concludes it would have been obvious to employ the materials in a fuel feed tube comprising a bellows portion in order to provide improved heat resistance. The Examiner further states that with regards to the surface resistivity recited in claims 16-21 that it would have been obvious, to one of ordinary skill to have provided the recited surface resistivities in order to dissipate static charge or to provide excellent resistance to electricity as suggested by Kobayashi. Applicants respectfully traverse.

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CONCLUSION

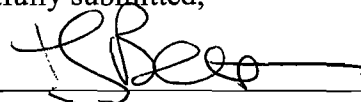
In view of the foregoing amendments and remarks, applicant believes the pending application is in condition for allowance, and earnestly solicits same.

If fees in addition to those transmitted herewith are required for the filing of this response, the Commissioner is hereby authorized and requested to charge any such fees, up to a maximum of \$300, to Darby and Darby Deposit Account No. 04-0100.

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Respectfully submitted,

By



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